JY997D35801C

MITSUBISHI *Changes for the Better*

GT01-RS4-M
Serial Multi-Drop Connection Unit

USER'S MANUAL

GRAPHIC OPERATION TERMINAL GOT1000

Manual Number	JY997D35801C
Date	Oct. 2009

This manual describes the specifications of the product. Before use, read this manual and manuals of relevant products fully to acquire proficiency in handling and operating the product. Make sure to learn all the product information, safety information, and precautions.
And, store this manual in a safe place so that you can take it out and read it whenever necessary. Always forward it to the end user.
Registration
The company name and the product name to be described in this manual are the registered trademarks or trademarks of each company.

Effective Oct. 2009
Specifications are subject to change without notice.
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Safety Precaution (Read these precautions before using.)

Before using this product, please read this manual and the relevant manuals introduced in this manual carefully and pay full attention to safety to handle the product correctly.
The precautions given in this manual are concerned with this product.
In this manual, the safety precautions are ranked as "DANGER" and "CAUTION".

DANGER	Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.
CAUTION	Indicates that incorrect handling may cause hazardous conditions, resulting in medium or slight personal injury or physical damage.

Depending on circumstances, procedures indicated by "CAUTION" may also be linked to serious results.
In any case, it is important to follow the directions for usage.

DESIGN PRECAUTIONS DANGER

- Some failures of the Multi-Drop Connection Unit or cable may keep the outputs on or off.
  An external monitoring circuit should be provided to check for output signals which may lead to a serious accident.
  Not doing so can cause an accident due to false output or malfunction.
- If a communication fault (including cable disconnection) occurs during monitoring on the GOT, communication between the GOT and PLC CPU is suspended and the GOT becomes inoperative.
  A system where the GOT is used should be configured to perform any significant operation to the system by using the switches of a device other than the GOT on the assumption that a GOT communication fault will occur.
  Not doing so can cause an accident due to false output or malfunction.
- Do not use the Multi-Drop Connection Unit as the warning device that may cause a serious accident.
  An independent and redundant hardware or mechanical interlock is required to configure the device that displays and outputs serious warning.
  Failure to observe this instruction may result in an accident due to incorrect output or malfunction.

DESIGN PRECAUTIONS CAUTION

- Do not bundle the control and communication cables with main-circuit, power or other wiring.
  Run the above cables separately from such wiring and keep them a minimum of 100mm (3.94in.) apart.Not doing so noise can cause a malfunction.

MOUNTING PRECAUTIONS DANGER

- Be sure to shut off all phases of the external power supply used by the system before mounting or removing the Multi-Drop Connection Unit to/from the panel.
  Not doing so can cause the unit to fail or malfunction.
- When installing the battery wear an earth band etc. to avoid the static electricity.
  The static electricity can cause the unit to fail or malfunction.

MOUNTING PRECAUTIONS CAUTION

- Use the Multi-Drop Connection Unit in the environment that satisfies the general specifications described in this manual. Not doing so can cause an electric shock, fire, malfunction or product damage or deterioration.

WIRING PRECAUTIONS DANGER

- Be sure to shut off all phases of the external power supply used by the system before wiring. Failure to do so may result in an electric shock, product damage or malfunctions.
- Please make sure to ground FG terminal of the Multi-Drop Connection Unit power supply section by applying 100 or less which is used exclusively for the GOT. Not doing so may cause an electric shock or malfunction.
- Correctly wire the Multi-Drop Connection Unit power supply section after confirming the rated voltage and terminal arrangement of the product. Not doing so can cause a fire or failure.
- Tighten the terminal screws of the Multi-Drop Connection Unit power supply section in the specified torque range. Undertightening can cause a short circuit or malfunction.
  Overtightening can cause a short circuit or malfunction due to the damage of the screws or the Multi-Drop Connection Unit.
- Exercise care to avoid foreign matter such as chips and wire offcuts entering the Multi-Drop Connection Unit. Not doing so can cause a fire, failure or malfunction.

WIRING PRECAUTIONS CAUTION

- Plug the communication cable into the connector of the connected unit and tighten the mounting and terminal screws in the specified torque range.
  Undertightening can cause a short circuit or malfunction. Overtightening can cause a short circuit or malfunction due to the damage of the screws or unit.

STARTUP/MAINTENANCE PRECAUTIONS CAUTION

- Do not disassemble or modify the Multi-Drop Connection Unit.
  Doing so can cause a failure, malfunction, injury or fire.
- Do not touch the conductive and electronic parts of the Multi-Drop Connection Unit directly.
  Doing so can cause a Multi-Drop Connection Unit malfunction or failure.
- The cables connected to the Multi-Drop Connection Unit must be run in ducts or clamped.
  Not doing so can cause the Multi-Drop Connection Unit or cable to be damaged due to the dangling, motion or accidental pulling of the cables or can cause a malfunction due to a cable connection fault.
- When unplugging the cable connected to the unit, do not hold and pull the cable portion. Doing so can cause the unit or cable to be damaged or can cause a malfunction due to a cable connection fault.
- Do not drop or apply any impact to the battery.
  If any impact has been applied, discard the battery and never use it.
  The battery may be damaged by the drop or impact.
- Before touching the unit, always touch grounded metal, etc. to discharge static electricity from human body, etc.
  Not doing so can cause the Multi-Drop Connection Unit to fail malfunction.

DISPOSAL PRECAUTIONS CAUTION

- When disposing of the product, handle it as industrial waste.

TRANSPORTATION PRECAUTIONS CAUTION

- Make sure to transport the Multi-Drop Connection Unit main unit and/or relevant unit(s) in the manner they will not be exposed to the impact exceeding the impact resistance described in the general specifications of this manual, as they are precision devices. Failure to do so may cause the unit to fail.
  Check if the unit operates correctly after transportation.

Compliance with EC directive (CE Marking)

This note does not guarantee that an entire mechanical module produced in accordance with the contents of this note will comply with the following standards. Compliance to EMC directive for the entire mechanical module should be checked by the user / manufacturer. For more details please contact the local Mitsubishi Electric sales site.

Attention

- This product is designed for use in industrial applications.
- Manufactured by: Mitsubishi Electric Corporation
  2-7-3 Marunouchi, Chiyoda-ku, Tokyo 100-8310 Japan
- Manufactured at: Mitsubishi Electric Corporation Himeji Works
  840 Chiyoda-machi, Himeji, Hyogo 670-8677 Japan
- Authorized Representative in the European Community:
  Mitsubishi Electric Europe B.V.
  Gothaer Str. 8, 40880 Ratingen, Germany.

Requirement for Compliance with EMC directive

The following products have shown compliance through direct testing (to the identified standards) and design analysis (forming a technical construction file) to the European Directive for Electromagnetic Compatibility (2004/108/EC) when used as directed by the appropriate documentation.
Type :Programmable Controller (Open Type Equipment)

Standard		Remark
EN61131-2 : 2003 Programmable controllers- Equipment, requirement and tests	EMI	Compliance with all relevant aspects of the standard. (Radiated Emissions)
	EMS	Compliance with all relevant aspects of the standard. (ESD, RF electromagnetic field, EFTB, Surge, RF conducted disturbances and Power frequency magnetic field)

For more details please contact the local Mitsubishi Electric sales site.

Associated Manuals

The following manuals are relevant to this product. When these loose manuals are required, please consult with our local distributor.

Manual Name	Manual Number (Model Code)	Description
GOT1000 Series Connection Manual 1/3, 2/3, 3/3	SH-080532ENG (1D7M26)	Describes system configurations of connection methods applicable to GOT1000 series and cable creation methods
GT Designer2 Version2 Basic Operation/Data Transfer Manual (For GOT1000 Series)	SH-080529ENG (1D7M24)	Describes methods of the GT Designer2 installation operation, basic operation for drawing and transmitting data to GOT1000 series
GT Designer2 Version2 Screen Design Manual (For GOT1000 Series) 1/3, 2/3, 3/3	SH-080530ENG (1D7M25)	Describes specifications and settings of the object functions used in GT Designer2
GT Designer3 Version1 Screen Design Manual (For GOT1000 Series) (Fundamentals)	SH-080866ENG (1D7MB9)	Describes methods of the GT Designer3 installation operation, basic operation for drawing and transmitting data to GOT1000 series

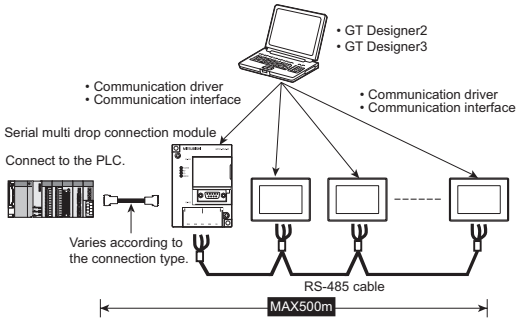
Bundled Items

Included Item	Number of Items
GT01-RS4-M main unit	1
Power supply cable with connectors	1
GT01-RS4-M Multi-Drop Connection Module User's Manual (this manual)	1

1. System Configuration

1.1 System Configuration

GOT multi-drop connection is a communication method for 1:N communication by connecting multiple GOTs to one PLC, using the GT01-RS4-M serial multi-drop connection module.



1.2 Compatible PLC

For PLCs compatible with the GOT multi-drop connection, refer to the GOT1000 Series Connection Manual.

1.3 Compatible GOT

The followings are the GOTs compatible with the GOT multi-drop connection.
For the confirmation method of the hardware version, refer to the User's Manual of each GOT.

GOT	Hardware version
GT16□□	Soon to be supported
GT15□□	
GT1155-QTBD	Version C or later
GT1155-QSBD, GT1150-QLBD	Version F or later
GT1055-QSBD, GT1050-QBBD	Version C or later
GT1045-QSBD, GT1040-QBBD	Version A or later
GT1030-LBD/LWD, GT1030-LBDW/LWDW	Version B or later
GT1020-LBD/LWD, GT1020-LBDW/LWDW	Version E or later

1.4 Compatible drawing software version

GT Designer2 Version2 (Ver.2.93X or later)
GT Designer3 Version1 (Ver.1.01B or later)

2. Outline Procedure

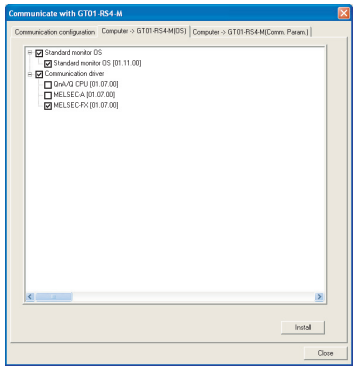
The outline procedure is shown below.

1) Install the OS.

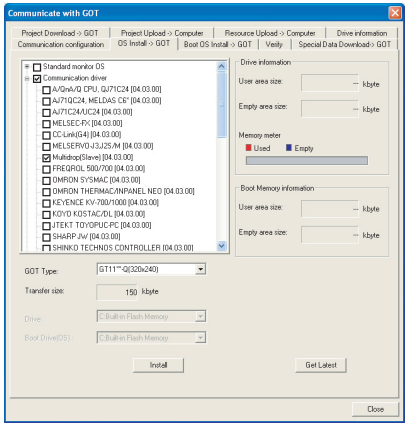
- Install the communication driver of the PLC connected to the multi-drop connection module.
- Install the communication driver (multi-drop (Slave)) to the GOT.
  For details of the installation method, refer to the GT Designer2 Version2 Basic Operation/Data Transfer Manual or GT Designer3 Version□ Screen Design Manual.

- For GT Designer2

(For multi-drop connection module)

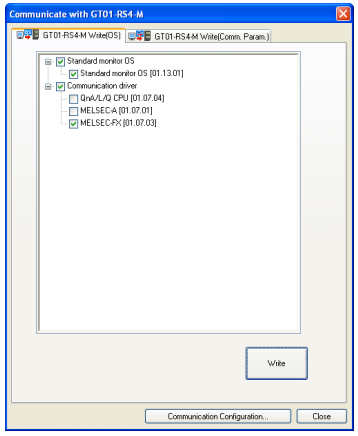


(For GOT)

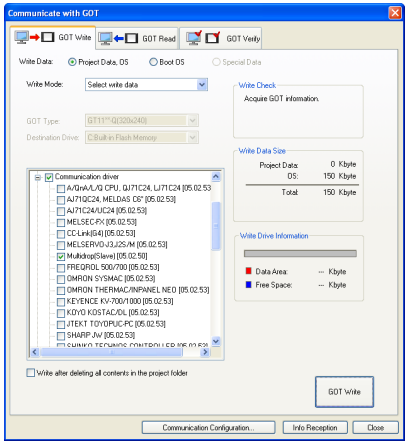


- For GT Designer3

(For multi-drop connection module)



(For GOT)



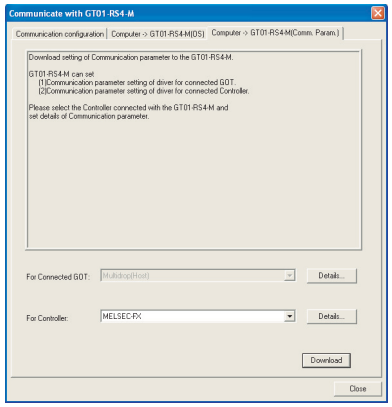
2) Make sure that the OS is installed.
   Check GT Designer2 or GT Designer3 drive information to know if the OS is properly installed in the GOT.
   For details, refer to the GT Designer2 Version2 Basic Operation/Data Transfer Manual or GT Designer3 Version□ Screen Design Manual.

3) Set the communication interface.

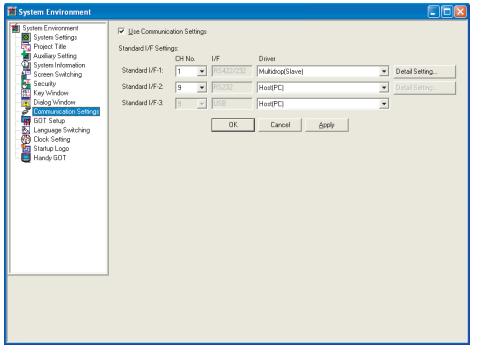
- For the multi-drop connection module, set the communication interface in the communication setting with GT01-RS4-M of GT Designer2 or GT Designer3.
- For the GOT, set the communication interface in the Communication Settings of GT Designer2 or GT Designer3.
  For details, refer to the GT Designer2 Version2 Basic Operation/Data Transfer Manual or GT Designer3 Version□ Screen Design Manual.

- For GT Designer2

(For multi-drop connection module)

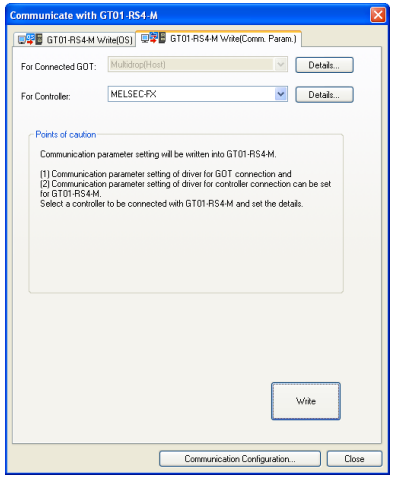


(For GOT)

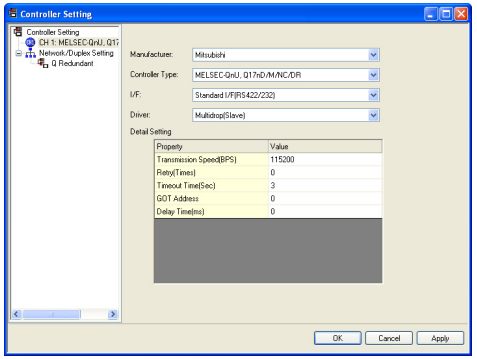


- For GT Designer3

(For multi-drop connection module)


Communicate with GT01-RS4-M
GT01-RS4-M Write(OS)
GT01-RS4-M Write(Comm. Param.)
For Connected GOT:
Multidrop(Host)
Details...
For Controller:
MELSEC-FX
Details...
Points of caution
Communication parameter setting will be written into GT01-RS4-M.
(1) Communication parameter setting of driver for GOT connection and
(2) Communication parameter setting of driver for controller connection can be set for GT01-RS4-M.
Select a controller to be connected with GT01-RS4-M and set the details.
Write
Communication Configuration...
Close

(For GOT)



4) Download the project data.
   For instructions on how to download the project data, refer to the GT Designer2 Version2 Basic Operation/Data Transfer Manual or GT Designer3 Version□ Screen Design Manual.

5) Connect the cable.
   For details of the cable connection, refer to the GOT1000 Series Connection Manual.

3. Specifications

3.1 General Specifications

Item	Specifications					
Operating ambient temperature	0 to 55°C					
Storage ambient temperature	-20 to 60°C					
Operating/Storage ambient humidity	10 to 90% RH, non-condensing (The wet bulb temperature is 39°C or less.)					
Vibration resistance	Conforms to JIS C60068-2-6		Frequency	Acceleration	Half-amplitude	Sweep Count
		Installed with DIN rail	10 to 57Hz	–	0.035mm	10 times each in X, Y and Z directions (Total 80 minutes for each)
			57 to 150Hz	4.9m/s^2	–	
		Directly installed	10 to 57Hz	–	0.075mm	
			57 to 150Hz	9.8m/s^2	–	
Shock resistance	Conforms to JIS C60068-2-27 (147 m/s^2, 11 ms, Sine half-wave pulse, 3 times each in the X, Y, and Z directions)					
Operating atmosphere	Must be free of lamp black, corrosive gas, flammable gas, or excessive amounts of electroconductive dust particles and must not be placed in direct sunlight. (This applies for storage as well)					
Operating altitude	2000m (6562 ft) max.*1					
Cooling method	Self-cooling					
External dimensions (D×W×H)	90×65×90mm					
Weight	Approx. 0.3kg					
Installation method	Using DIN rail or fixed with screws					
Exterior color (Case)	Standard color of Mitsubishi Electric (Black: corresponding to N-0230-BG)					
Standard	Conforms to CE					

*1 Cannot be used under pressures higher than the atmospheric pressure. Failure to observe this instruction may cause the unit to fail.

3.2 Communication Specifications

Item		I/F1 (RS-422)	I/F2 (RS-232)	I/F3 (RS-485)	I/F4 (USB)
Connection configuration		1:1		1:N	1:1
Transmission standard	Transmission method	RS-422 1ch	RS-232 1ch	RS-485 1ch	USB device 1ch
	Transmission speed	115, 200/57, 600/38, 400/19, 200/9, 600/4, 800 bps			Full Speed 12Mbps
	Insulation method	Photocoupler insulation			--
	Connector	D-sub 9-pin (female)	D-sub 9-pin (male)	Terminal block (attach/detach type)	Mini B (Receptacle)
Transmission distance		30m or less	3m or less	500m (max.) (maximum overall extension length of the system)	--
Number of GOTs that can be connected		1		16 (max.)	1
Communication method		Full duplex		Half duplex and full duplex (Can be selected depending on the wiring)	--
Application		For PLC connection (Cannot be used simultaneously with I/F2)	For PLC connection (Cannot be used simultaneously with I/F1)	For multi-drop connection	PC communication (OS installation)

3.3 Power Supply Specifications

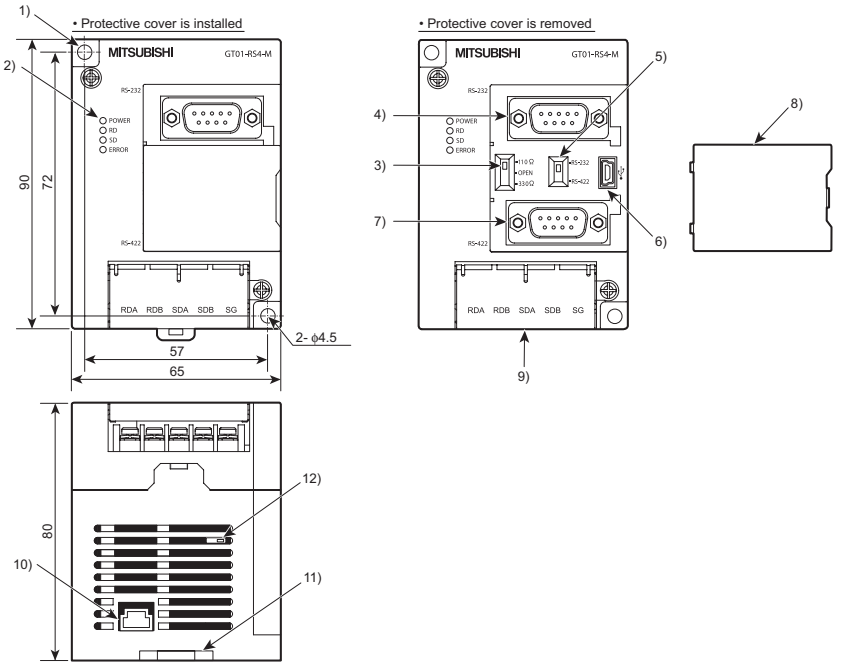
Item	Specifications
Input power supply voltage	24VDC (+10%, -15%)
Fuse (built-in, not exchangeable)	1A
Power consumption	3.36W or less (140mA/24VDC)
Inrush current	14A or less (24VDC, 2ms)
Dielectric withstand voltage	500VAC for 1 minute (across power supply terminals and earth)
Insulation resistance	10MΩ or larger by insulation resistance tester (across power supply terminals and earth)
Grounding	Class D grounding (100Ω or less), To be connected to the panel when grounding is not possible

3.4 LED Light Specifications

LED Name	Status	Description
POWER	Lit	Power is properly supplied.
	Not lit	Power is not properly supplied.
SD	Lit	Sending the data to PLC
	Not lit	Not sending the data to PLC
RD	Lit	Receiving the data from PLC
	Not lit	Not receiving the data from PLC
ERROR*1	Not lit	No error
	Lit in red	Communication error with PLC
	Blinking in red	Multi-drop communication error

*1 For details of corrective actions, refer to Chapter 7 Troubleshooting.

4. External Dimensions and Part name



No	Name		Specifications
1)	Installation hole for the main unit		Installation hole
2)	LED	POWER	Lit in green when the power is properly supplied.
		SD	Lit in green when the data is being sent to PLC.
		RD	Lit in green when the data is being received from PLC.
		ERROR	Lit or blinking depending on the status.
3)	Terminating resistor selector		Can be selected among 110Ω, OPEN and 330Ω (set to "OPEN" by default)
4)	Connector for PLC communication (for RS-232 connection)		D-sub 9-pin (male)
5)	Connector selection switch for PLC communication		Switch for selecting RS-422 or RS-232 (set to "RS-422" by default)
6)	USB port		For connecting to a personal computer (for changing the communication driver)
7)	Connector for PLC communication (for RS-422 connection)		D-sub 9-pin (female)
8)	Protective cover		Protect unused D-sub connector, USB port and switches.
9)	Terminal block for the serial multi-drop communication		Terminal block 5-pin (with a protective cover) M3 Tightening torque 0.5 to 0.6N.m
10)	Power supply connector		24VDC power supply connector insertion point (A dedicated cable is included.)
11)	Slider for installing the DIN rail		–
12)	Mode selection switch (Slide switch)		Do not operate. (Set to right by default. When set to left, the module does not operate normally.)

5. Installation

5.1 Installed with DIN Rail

Install the multi-drop connection module with its hook (1 place) using the DIN rail.

- Applicable DIN rail DIN46277 (width: 35mm)
  (Install the DIN rail with screws at intervals of 150mm.)

5.2 Directly Installed to Panel

Install the multi-drop connection module to the panel using ϕ4.5mm holes (2 places).

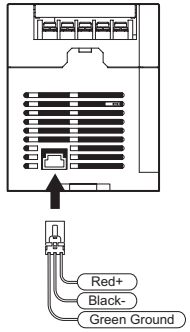
5.3 Caution for compliance with EMC Directive

Programmable logic controllers are open-type devices that must be installed and used within conductive control boxes. Please use the Multi-Drop Connection Unit while installed in conductive shielded control boxes. Please secure the control box lid to the control box (for conduction). Installation within a control box greatly affects the safety of the system and aids in shielding noise from the Multi-Drop Connection Unit.

6. Wiring

6.1 Power Supply Wiring

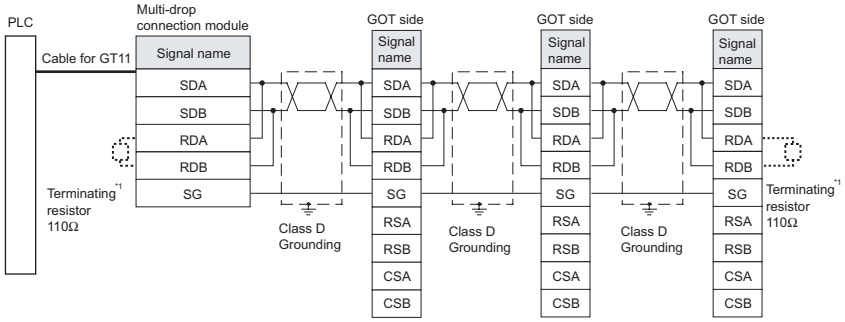
Connect the power supply cable with connectors (included) and the 24VDC terminal of the external power supply.



6.2 Wiring and Terminating Resistor Setting

6.2.1 For 1 pair wiring

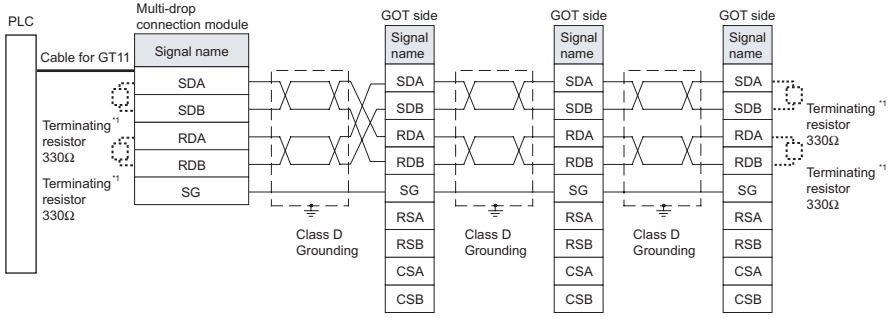
Make sure to ground a twisted pair cable by applying Class D Grounding (100Ω or less).



*1 The terminating resistor 110Ω is built in the multi-drop connection module and GOT (GT10,GT11).
Make sure to set the terminating resistor to both ends of the line.
For GT15 or GT16, external wiring is required. Set the terminating resistor of the GOT that is not at the end of the line to "OPEN".

6.2.2 For 2 pair wiring

Make sure to ground a twisted pair cable by applying Class D Grounding (100Ω or less).



*1 The terminating resistor 330Ω is built in the multi-drop connection module and GOT (GT10,GT11).
Make sure to set the terminating resistor to both ends of the line.
For GT15 or GT16, external wiring is required. Set the terminating resistor of the GOT that is not at the end of the line to "OPEN".

7. Troubleshooting

In the case where ERROR LED is lit or blinking, check the following items.

Status of ERROR LED	Description
Lit in red	Check the following items. • Check if the power supply status is normal or not. • Check the wiring of the connection cable. • Install the correct communication driver. • Check if the communication interface to which the cable is connected is correct or not. • Check the setting of the RS-422/RS-232 selector switch.
Blinking in red	Check the following items. • Check that the Mode selection switch is set to the right. • The OS may be faulty. Install the standard OS and communication driver from GT Designer2 or GT Designer3 to the multi-drop module again.

This manual confers no industrial property rights or any rights of any other kind, nor does it confer any patent licenses. Mitsubishi Electric Corporation cannot be held responsible for any problems involving industrial property rights which may occur as a result of using the contents noted in this manual.

Warranty
Mitsubishi will not be held liable for damage caused by factors found not to be the cause of Mitsubishi; opportunity loss or lost profits caused by faults in the Mitsubishi products; damage, secondary damage, accident compensation caused by special factors unpredictable by Mitsubishi; damages to products other than Mitsubishi products; and to other duties.

⚠ For safe use

- This product has been manufactured as a general-purpose part for general industries, and has not been designed or manufactured to be incorporated in a device or system used in purposes related to human life.
- Before using the product for special purposes such as nuclear power, electric power, aerospace, medicine or passenger movement vehicles, consult with Mitsubishi Electric.
- This product has been manufactured under strict quality control. However when installing the product where major accidents or losses could occur if the product fails, install appropriate backup or failsafe functions in the system.

MITSUBISHI ELECTRIC CORPORATION
HEAD OFFICE : TOKYO BUILDING, 2-7-3 MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN
HIMEJI WORKS : 840, CHIYODA CHO, HIMEJI, JAPAN

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  An independent and redundant hardware or mechanical interlock is required to configure the device that displays and outputs serious warning.
  Failure to observe this instruction may result in an accident due to incorrect output or malfunction.

DESIGN PRECAUTIONS ⚠CAUTION

- Do not bundle the control and communication cables with main-circuit, power or other wiring.
  Run the above cables separately from such wiring and keep them a minimum of 100mm (3.94in.) apart.Not doing so noise can cause a malfunction.

MOUNTING PRECAUTIONS ⚠DANGER

- Be sure to shut off all phases of the external power supply used by the system before mounting or removing the Multi-Drop Connection Unit to/from the panel. Not doing so can cause the unit to fail or malfunction.
- When installing the battery wear an earth band etc. to avoid the static electricity. The static electricity can cause the unit to fail or malfunction.

MOUNTING PRECAUTIONS ⚠CAUTION

- Use the Multi-Drop Connection Unit in the environment that satisfies the general specifications described in this manual. Not doing so can cause an electric shock, fire, malfunction or product damage or deterioration.

WIRING PRECAUTIONS ⚠DANGER

- Be sure to shut off all phases of the external power supply used by the system before wiring. Failure to do so may result in an electric shock, product damage or malfunctions.
- Please make sure to ground FG terminal of the Multi-Drop Connection Unit power supply section by applying 100 or less which is used exclusively for the GOT. Not doing so may cause an electric shock or malfunction.
- Correctly wire the Multi-Drop Connection Unit power supply section after confirming the rated voltage and terminal arrangement of the product. Not doing so can cause a fire or failure.
- Tighten the terminal screws of the Multi-Drop Connection Unit power supply section in the specified torque range. Undertightening can cause a short circuit or malfunction.
  Overtightening can cause a short circuit or malfunction due to the damage of the screws or the Multi-Drop Connection Unit.
- Exercise care to avoid foreign matter such as chips and wire offcuts entering the Multi-Drop Connection Unit. Not doing so can cause a fire, failure or malfunction.

WIRING PRECAUTIONS ⚠CAUTION

- Plug the communication cable into the connector of the connected unit and tighten the mounting and terminal screws in the specified torque range.
  Undertightening can cause a short circuit or malfunction. Overtightening can cause a short circuit or malfunction due to the damage of the screws or unit.

STARTUP/MAINTENANCE PRECAUTIONS ⚠CAUTION

- Do not disassemble or modify the Multi-Drop Connection Unit.
  Doing so can cause a failure, malfunction, injury or fire.
- Do not touch the conductive and electronic parts of the Multi-Drop Connection Unit directly.
  Doing so can cause a Multi-Drop Connection Unit malfunction or failure.
- The cables connected to the Multi-Drop Connection Unit must be run in ducts or clamped.
  Not doing so can cause the Multi-Drop Connection Unit or cable to be damaged due to the dangling, motion or accidental pulling of the cables or can cause a malfunction due to a cable connection fault.
- When unplugging the cable connected to the unit, do not hold and pull the cable portion. Doing so can cause the unit or cable to be damaged or can cause a malfunction due to a cable connection fault.
- Do not drop or apply any impact to the battery.
  If any impact has been applied, discard the battery and never use it.
  The battery may be damaged by the drop or impact.
- Before touching the unit, always touch grounded metal, etc. to discharge static electricity from human body, etc.
  Not doing so can cause the Multi-Drop Connection Unit to fail malfunction.

DISPOSAL PRECAUTIONS ⚠CAUTION

- When disposing of the product, handle it as industrial waste.

TRANSPORTATION PRECAUTIONS ⚠CAUTION

- Make sure to transport the Multi-Drop Connection Unit main unit and/or relevant unit(s) in the manner they will not be exposed to the impact exceeding the impact resistance described in the general specifications of this manual, as they are precision devices. Failure to do so may cause the unit to fail.
  Check if the unit operates correctly after transportation.

Compliance with EC directive (CE Marking)

This note does not guarantee that an entire mechanical module produced in accordance with the contents of this note will comply with the following standards. Compliance to EMC directive for the entire mechanical module should be checked by the user / manufacturer. For more details please contact the local Mitsubishi Electric sales site.

Attention

- This product is designed for use in industrial applications.
- Manufactured by: Mitsubishi Electric Corporation
  2-7-3 Marunouchi, Chiyoda-ku, Tokyo 100-8310 Japan
- Manufactured at: Mitsubishi Electric Corporation Himeji Works
  840 Chiyoda-machi, Himeji, Hyogo 670-8677 Japan
- Authorized Representative in the European Community:
  Mitsubishi Electric Europe B.V.
  Gothaer Str. 8, 40880 Ratingen, Germany.

Requirement for Compliance with EMC directive

The following products have shown compliance through direct testing (to the identified standards) and design analysis (forming a technical construction file) to the European Directive for Electromagnetic Compatibility (2004/108/EC) when used as directed by the appropriate documentation.
Type :Programmable Controller (Open Type Equipment)

Standard		Remark
EN61131-2 : 2003 Programmable controllers- Equipment, requirement and tests	EMI	Compliance with all relevant aspects of the standard. (Radiated Emissions)
	EMS	Compliance with all relevant aspects of the standard. (ESD, RF electromagnetic field, EFTB, Surge, RF conducted disturbances and Power frequency magnetic field)

For more details please contact the local Mitsubishi Electric sales site.

Associated Manuals

The following manuals are relevant to this product. When these loose manuals are required, please consult with our local distributor.

Manual Name	Manual Number (Model Code)	Description
GOT1000 Series Connection Manual 1/3, 2/3, 3/3	SH-080532ENG (1D7M26)	Describes system configurations of connection methods applicable to GOT1000 series and cable creation methods
GT Designer2 Version2 Basic Operation/Data Transfer Manual (For GOT1000 Series)	SH-080529ENG (1D7M24)	Describes methods of the GT Designer2 installation operation, basic operation for drawing and transmitting data to GOT1000 series
GT Designer2 Version2 Screen Design Manual (For GOT1000 Series) 1/3, 2/3, 3/3	SH-080530ENG (1D7M25)	Describes specifications and settings of the object functions used in GT Designer2
GT Designer3 Version1 Screen Design Manual (For GOT1000 Series) (Fundamentals)	SH-080866ENG (1D7MB9)	Describes methods of the GT Designer3 installation operation, basic operation for drawing and transmitting data to GOT1000 series

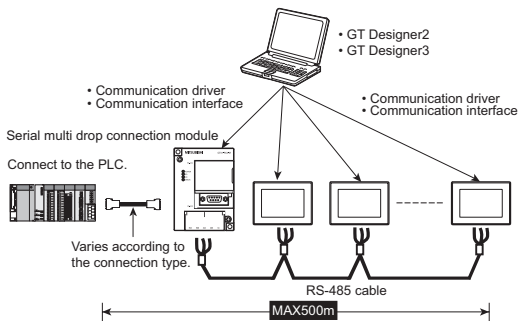
Bundled Items

Included Item	Number of Items
GT01-RS4-M main unit	1
Power supply cable with connectors	1
GT01-RS4-M Multi-Drop Connection Module User's Manual (this manual)	1

1. System Configuration

1.1 System Configuration

GOT multi-drop connection is a communication method for 1:N communication by connecting multiple GOTs to one PLC, using the GT01-RS4-M serial multi-drop connection module.



1.2 Compatible PLC

For PLCs compatible with the GOT multi-drop connection, refer to the GOT1000 Series Connection Manual.

1.3 Compatible GOT

The followings are the GOTs compatible with the GOT multi-drop connection.
For the confirmation method of the hardware version, refer to the User's Manual of each GOT.

GOT	Hardware version
GT16□□	Soon to be supported
GT15□□	
GT1155-QTBD	Version C or later
GT1155-QSBD, GT1150-QLBD	Version F or later
GT1055-QSBD, GT1050-QBBD	Version C or later
GT1045-QSBD, GT1040-QBBD	Version A or later
GT1030-LBD/LWD, GT1030-LBDW/LWDW	Version B or later
GT1020-LBD/LWD, GT1020-LBDW/LWDW	Version E or later

1.4 Compatible drawing software version

GT Designer2 Version2 (Ver.2.93X or later)
GT Designer3 Version1 (Ver.1.01B or later)

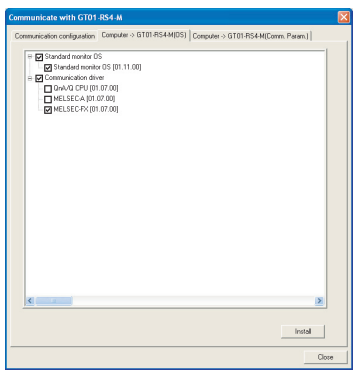
2. Outline Procedure

The outline procedure is shown below.

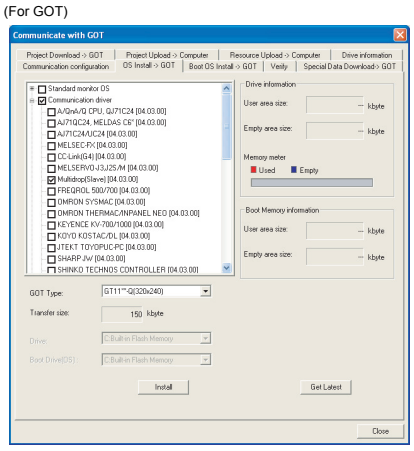
1) Install the OS.

- Install the communication driver of the PLC connected to the multi-drop connection module.
- Install the communication driver (multi-drop (Slave)) to the GOT.
  For details of the installation method, refer to the GT Designer2 Version2 Basic Operation/Data Transfer Manual or GT Designer3 Version□ Screen Design Manual.

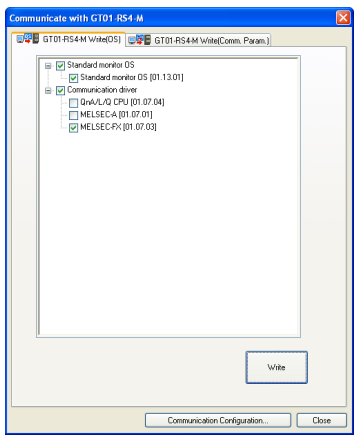
- For GT Designer2
(For multi-drop connection module)



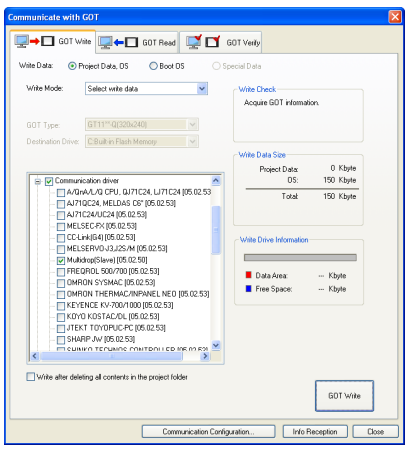
(For GOT)



- For GT Designer3
(For multi-drop connection module)



(For GOT)

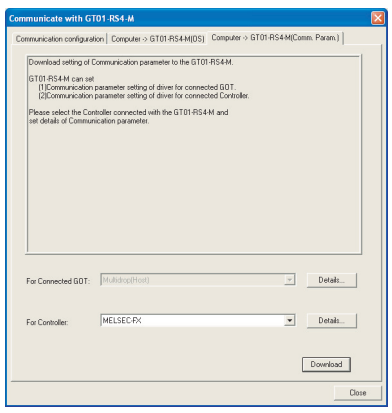


2) Make sure that the OS is installed.
Check GT Designer2 or GT Designer3 drive information to know if the OS is properly installed in the GOT.
For details, refer to the GT Designer2 Version2 Basic Operation/Data Transfer Manual or GT Designer3 Version□ Screen Design Manual.

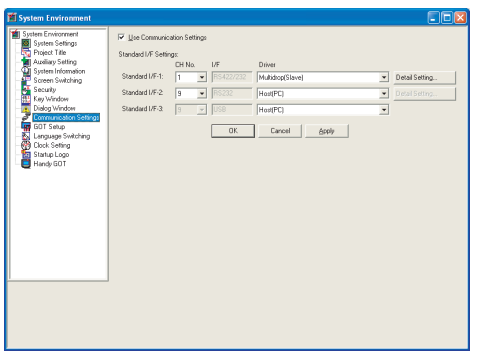
3) Set the communication interface.

- For the multi-drop connection module, set the communication interface in the communication setting with GT01-RS4-M of GT Designer2 or GT Designer3.
- For the GOT, set the communication interface in the Communication Settings of GT Designer2 or GT Designer3.
  For details, refer to the GT Designer2 Version2 Basic Operation/Data Transfer Manual or GT Designer3 Version□ Screen Design Manual.

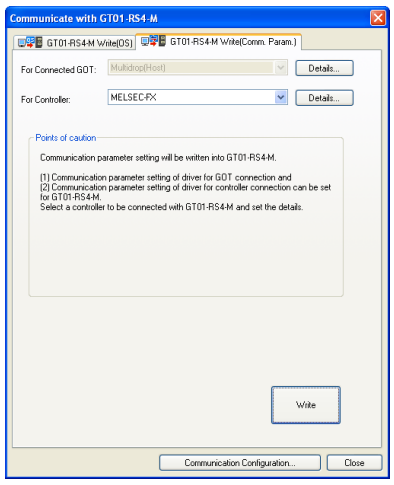
- For GT Designer2
(For multi-drop connection module)



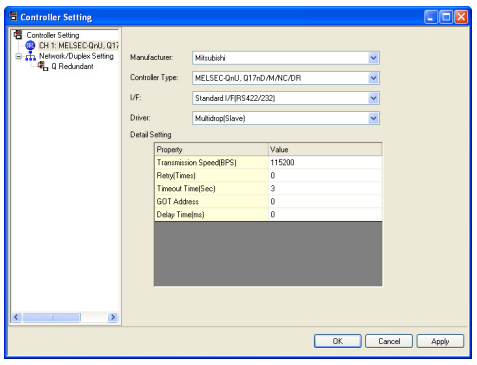
(For GOT)



- For GT Designer3
(For multi-drop connection module)


Communicate with GT01-RS4-M
GT01-RS4-M Write(OS)
GT01-RS4-M Write(Comm. Param.)
For Connected GOT:
Multidrop(Host)
Details...
For Controller:
MELSEC-FX
Details...
Points of caution
Communication parameter setting will be written into GT01-RS4-M.
(1) Communication parameter setting of driver for GOT connection and
(2) Communication parameter setting of driver for controller connection can be set for GT01-RS4-M.
Select a controller to be connected with GT01-RS4-M and set the details.
Write
Communication Configuration...
Close

(For GOT)



4) Download the project data.
For instructions on how to download the project data, refer to the GT Designer2 Version2 Basic Operation/Data Transfer Manual or GT Designer3 Version□ Screen Design Manual.

5) Connect the cable.
For details of the cable connection, refer to the GOT1000 Series Connection Manual.

3. Specifications

3.1 General Specifications

Item	Specifications					
Operating ambient temperature	0 to 55°C					
Storage ambient temperature	-20 to 60°C					
Operating/Storage ambient humidity	10 to 90% RH, non-condensing (The wet bulb temperature is 39°C or less.)					
Vibration resistance	Conforms to JIS C60068-2-6		Frequency	Acceleration	Half-amplitude	Sweep Count
		Installed with DIN rail	10 to 57Hz	–	0.035mm	10 times each in X, Y and Z directions (Total 80 minutes for each)
			57 to 150Hz	4.9m/s^2	–	
		Directly installed	10 to 57Hz	–	0.075mm	
			57 to 150Hz	9.8m/s^2	–	
Shock resistance	Conforms to JIS C60068-2-27 (147 m/s^2, 11 ms, Sine half-wave pulse, 3 times each in the X, Y, and Z directions)					
Operating atmosphere	Must be free of lamp black, corrosive gas, flammable gas, or excessive amounts of electroconductive dust particles and must not be placed in direct sunlight. (This applies for storage as well)					
Operating altitude	2000m (6562 ft) max.*1					
Cooling method	Self-cooling					
External dimensions (D×W×H)	90×65×90mm					
Weight	Approx. 0.3kg					
Installation method	Using DIN rail or fixed with screws					
Exterior color (Case)	Standard color of Mitsubishi Electric (Black: corresponding to N-0230-BG)					
Standard	Conforms to CE					

*1 Cannot be used under pressures higher than the atmospheric pressure. Failure to observe this instruction may cause the unit to fail.

3.2 Communication Specifications

Item		I/F1 (RS-422)	I/F2 (RS-232)	I/F3 (RS-485)	I/F4 (USB)
Connection configuration		1:1		1:N	1:1
Transmission standard	Transmission method	RS-422 1ch	RS-232 1ch	RS-485 1ch	USB device 1ch
	Transmission speed	115, 200/57, 600/38, 400/19, 200/9, 600/4, 800 bps			Full Speed 12Mbps
	Insulation method	Photocoupler insulation			--
	Connector	D-sub 9-pin (female)	D-sub 9-pin (male)	Terminal block (attach/detach type)	Mini B (Receptacle)
Transmission distance		30m or less	3m or less	500m (max.) (maximum overall extension length of the system)	--
Number of GOTs that can be connected		1		16 (max.)	1
Communication method		Full duplex		Half duplex and full duplex (Can be selected depending on the wiring)	--
Application		For PLC connection (Cannot be used simultaneously with I/F2)	For PLC connection (Cannot be used simultaneously with I/F1)	For multi-drop connection	PC communication (OS installation)

3.3 Power Supply Specifications

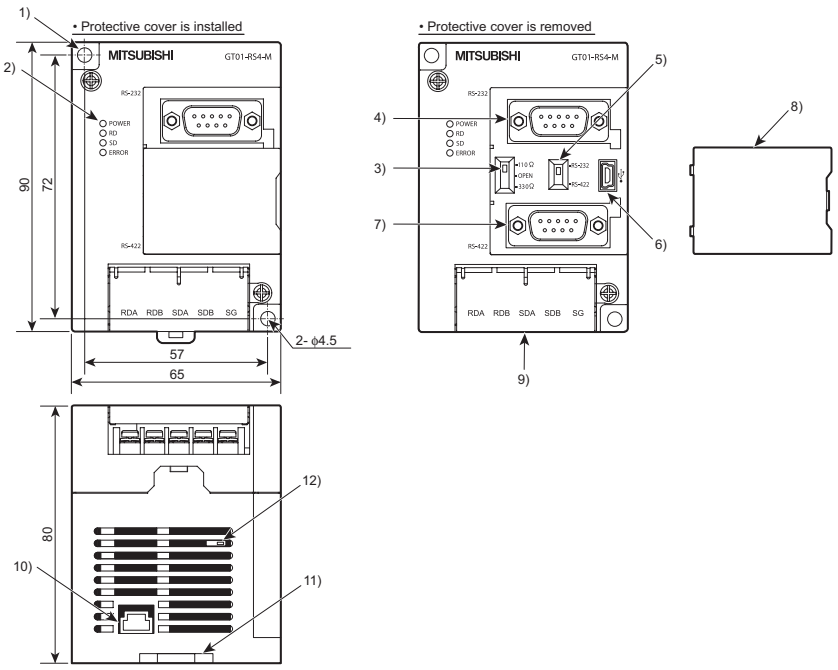
Item	Specifications
Input power supply voltage	24VDC (+10%, -15%)
Fuse (built-in, not exchangeable)	1A
Power consumption	3.36W or less (140mA/24VDC)
Inrush current	14A or less (24VDC, 2ms)
Dielectric withstand voltage	500VAC for 1 minute (across power supply terminals and earth)
Insulation resistance	10MΩ or larger by insulation resistance tester (across power supply terminals and earth)
Grounding	Class D grounding (100Ω or less), To be connected to the panel when grounding is not possible

3.4 LED Light Specifications

LED Name	Status	Description
POWER	Lit	Power is properly supplied.
	Not lit	Power is not properly supplied.
SD	Lit	Sending the data to PLC
	Not lit	Not sending the data to PLC
RD	Lit	Receiving the data from PLC
	Not lit	Not receiving the data from PLC
ERROR*1	Not lit	No error
	Lit in red	Communication error with PLC
	Blinking in red	Multi-drop communication error

*1 For details of corrective actions, refer to Chapter 7 Troubleshooting.

4. External Dimensions and Part name



No	Name		Specifications
1)	Installation hole for the main unit		Installation hole
2)	LED	POWER	Lit in green when the power is properly supplied.
		SD	Lit in green when the data is being sent to PLC.
		RD	Lit in green when the data is being received from PLC.
		ERROR	Lit or blinking depending on the status.
3)	Terminating resistor selector		Can be selected among 110Ω, OPEN and 330Ω (set to "OPEN" by default)
4)	Connector for PLC communication (for RS-232 connection)		D-sub 9-pin (male)
5)	Connector selection switch for PLC communication		Switch for selecting RS-422 or RS-232 (set to "RS-422" by default)
6)	USB port		For connecting to a personal computer (for changing the communication driver)
7)	Connector for PLC communication (for RS-422 connection)		D-sub 9-pin (female)
8)	Protective cover		Protect unused D-sub connector, USB port and switches.
9)	Terminal block for the serial multi-drop communication		Terminal block 5-pin (with a protective cover) M3 Tightening torque 0.5 to 0.6N.m
10)	Power supply connector		24VDC power supply connector insertion point (A dedicated cable is included.)
11)	Slider for installing the DIN rail		–
12)	Mode selection switch (Slide switch)		Do not operate. (Set to right by default. When set to left, the module does not operate normally.)

5. Installation

5.1 Installed with DIN Rail

Install the multi-drop connection module with its hook (1 place) using the DIN rail.

- Applicable DIN rail DIN46277 (width: 35mm)
  (Install the DIN rail with screws at intervals of 150mm.)

5.2 Directly Installed to Panel

Install the multi-drop connection module to the panel using ϕ4.5mm holes (2 places).

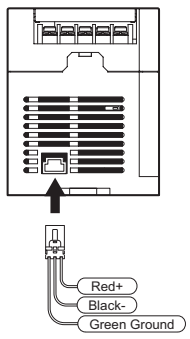
5.3 Caution for compliance with EMC Directive

Programmable logic controllers are open-type devices that must be installed and used within conductive control boxes. Please use the Multi-Drop Connection Unit while installed in conductive shielded control boxes. Please secure the control box lid to the control box (for conduction). Installation within a control box greatly affects the safety of the system and aids in shielding noise from the Multi-Drop Connection Unit.

6. Wiring

6.1 Power Supply Wiring

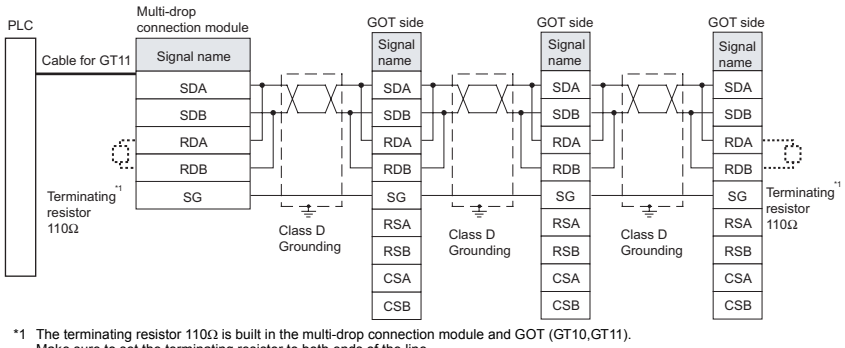
Connect the power supply cable with connectors (included) and the 24VDC terminal of the external power supply.



6.2 Wiring and Terminating Resistor Setting

6.2.1 For 1 pair wiring

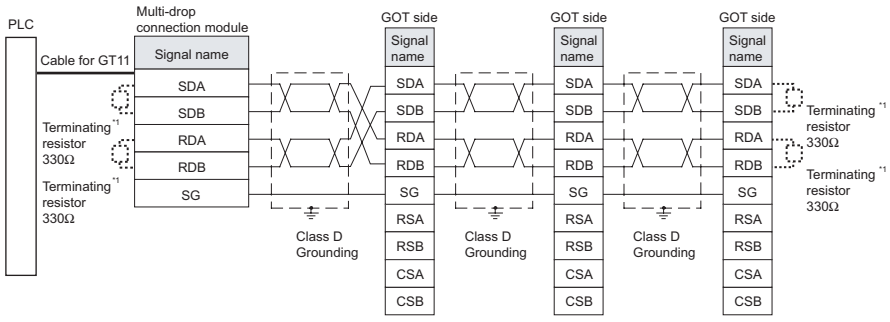
Make sure to ground a twisted pair cable by applying Class D Grounding (100Ω or less).



*1 The terminating resistor 110Ω is built in the multi-drop connection module and GOT (GT10,GT11).
Make sure to set the terminating resistor to both ends of the line.
For GT15 or GT16, external wiring is required. Set the terminating resistor of the GOT that is not at the end of the line to "OPEN".

6.2.2 For 2 pair wiring

Make sure to ground a twisted pair cable by applying Class D Grounding (100Ω or less).



*1 The terminating resistor 330Ω is built in the multi-drop connection module and GOT (GT10,GT11).
Make sure to set the terminating resistor to both ends of the line.
For GT15 or GT16, external wiring is required. Set the terminating resistor of the GOT that is not at the end of the line to "OPEN".

7. Troubleshooting

In the case where ERROR LED is lit or blinking, check the following items.

Status of ERROR LED	Description
Lit in red	Check the following items. • Check if the power supply status is normal or not. • Check the wiring of the connection cable. • Install the correct communication driver. • Check if the communication interface to which the cable is connected is correct or not. • Check the setting of the RS-422/RS-232 selector switch.
Blinking in red	Check the following items. • Check that the Mode selection switch is set to the right. • The OS may be faulty. Install the standard OS and communication driver from GT Designer2 or GT Designer3 to the multi-drop module again.

This manual confers no industrial property rights or any rights of any other kind, nor does it confer any patent licenses. Mitsubishi Electric Corporation cannot be held responsible for any problems involving industrial property rights which may occur as a result of using the contents noted in this manual.

Warranty
Mitsubishi will not be held liable for damage caused by factors found not to be the cause of Mitsubishi; opportunity loss or lost profits caused by faults in the Mitsubishi products; damage, secondary damage, accident compensation caused by special factors unpredictable by Mitsubishi; damages to products other than Mitsubishi products; and to other duties.

⚠ For safe use

- This product has been manufactured as a general-purpose part for general industries, and has not been designed or manufactured to be incorporated in a device or system used in purposes related to human life.
- Before using the product for special purposes such as nuclear power, electric power, aerospace, medicine or passenger movement vehicles, consult with Mitsubishi Electric.
- This product has been manufactured under strict quality control. However when installing the product where major accidents or losses could occur if the product fails, install appropriate backup or failsafe functions in the system.

MITSUBISHI ELECTRIC CORPORATION
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HIMEJI WORKS : 840, CHIYODA CHO, HIMEJI, JAPAN